

gazella), the horns are straight ; in the true Oryx (*O. leucoryx*), they are arched and recurved. The former has a black streak along the lower part of the sides, and is found over a large extent of Africa, from the Cape to Abyssinia ; for *O. Biessa* of Rüppell appears to be only a small variety of *O. gazella*, the smaller size depending on some peculiarity in the climate or locality, as is the case with the *Strepsiceros kudu* found in Abyssinia by Capt. Harris, which is only half the size of that inhabiting the Cape of Good Hope. The *O. leucoryx*, on the other hand, which is confined to Senaar and Senegal, is without any indication of the lateral streak.

The animal now under consideration is intermediate between these species ; it has the straight horn of *A. gazella* and the plain colour of *A. leucoryx*, but its dark legs and peculiar white feet at once separate it from either.

The animal was presented to the Society by Capt. John Shepherd of the India House ; it was regarded in the Gardens as a half-grown *Oryx gazella*, and is said to have been brought from Bombay. A pair was shipped from the latter port, but the female died at sea. The male is now in the Collection of the British Museum.

ORYX BEATRIX. The Beatrice.

The horns slender, straight, or only very slightly curved near the tip, annulated nearly to the tip. White ; a spot on the middle of the face, a smaller spot between the base of the horns, a large patch on each cheek, extended above up to the eyes, and united together beneath under the throat ; the knees and front of the fore- and hind-legs, and a large spot on the chest, dark blackish brown ; the legs to the posterior grey-brown ; end of the tail black.

Hab. Bombay, but probably brought from the shores of the Red Sea. Brit. Mus.

This specimen is not half the size of the Gemsbock from the Cape, and is immediately known from it by the distribution of its colours.

In form and size it resembles the true Oryx (*O. leucoryx*), but it differs in the straightness of the horn, the size and form of the cheek-spot, and especially in the dark colour of the legs, and the well-marked white ring around the fetlock joint just above the hoof.

The hair is whorled on the middle of the haunches as in the rest of the genus, and the hairs of the back in front of the withers are directed forwards.

MISCELLANEOUS.

On Circulation in Plants. By A. TRÉCUL. (First Part.)

BEFORE putting forward the opinion which my observations have suggested to me with regard to circulation in plants, I think it indispensable to examine the forces to which this phænomenon is

generally attributed. Considering the use that has been made of the known physical forces for explaining the absorption of liquids from the soil, the ascent of the sap, and also its descending course, I was for a moment surprised that no analogous experiment had been tried in order to account for the absorption of the gases drawn from the atmosphere. Nevertheless, this latter faculty of plants, which authors have been content with indicating, is not less important than the absorption of liquids by the roots. But it has not been capable of explanation by the ordinary laws of physics. I am about to attempt to prove that the aspiration by the roots, and the movements of liquids in plants, cannot be effected under the influence of the physical forces to which such an important part is still ascribed, namely capillarity and endosmose. Even those physiologists who ascribe a great part in the ascent of the sap to capillarity, and especially to endosmose, are compelled to admit that they are incapable of raising liquids to the height of our trees, without the aid of the evaporation which takes place in the leaves, and which, as they say, draws the liquids towards those organs. For my part, I think, that if evaporation causes the liquids to rise, it must prevent them from descending: now they descend after rising; therefore evaporation does not assist in their elevation. I also think that Nature never makes use of insufficient causes like endosmose and capillarity; and on the other hand, the part attributed to endosmose is incompatible with the constitution of plants.

Suppose, for a moment, with the physiologists, that it is endosmose which causes liquids to rise by the ligneous mass, and afterwards to descend by the bark. In order that this phænomenon should be accomplished, the density of the juices must constantly increase as they rise (this is what has been observed); and this density must also increase in passing through the leaves from the ligneous mass to the bark, and in descending from cell to cell in the interior of the cortical tissue. (At the last meeting of the Academy I stated that these juices do not descend in the laticiferous vessels, which have other functions.) We could not, moreover, recur exclusively to gravitation, seeing that there are pendent branches as well as erect ones.

The botanists who admit the endosmotic theory have not remarked that they have thus, side by side, two currents of liquids of different densities; they have not noticed that the ascending sap, being less dense than the descending, would necessarily be attracted by the latter, as the membranes are permeable; they have not considered that throughout the whole length of the trunk there would necessarily be a horizontal, centrifugal current, until an equilibrium of density was established, and that then the double ascending and descending current could not exist. As this is not the case, the endosmotic theory is erroneous. A force distinct from endosmose must therefore preside over the absorption of the liquids drawn from the soil, as well as over that of the gases taken from the atmosphere. And thus there are in plants other movements than that of the ascending and descending sap. This sap, in its course, gives off, into

all the cells, the substances necessary for their nutrition. These cells assimilate the elements which they require, and reject those which are useless to them. The rejected elements are taken up by the laticiferous vessels, or collected into peculiar reservoirs, like the essential oils, &c. These reservoirs, however, do not contain a liquid of greater density for which these essential oils have an affinity. Here again, therefore, endosmose has no part in the movement of the liquids.

The tendency to admit purely physical causes to explain physiological phænomena is again observed with regard to the spongiolæ; for this extremity of the root has been compared to a sponge, as is indicated by its name. Let us see, therefore, how far this comparison is exact.

In my memoir on the origin of roots, I have shown that the young tissues, the formation of which causes the elongation of the roots, are protected during their development by a sort of little cap, which, for this reason, I called the *pileorhiza*. It actually envelopes the extremity of the root like a cap. This organ may be easily observed, especially upon the roots of aquatic plants, because in these the development is more rapid than in most other plants. This cap adheres to the extremity of the root by the interior of its apex; it is from this point that it is renewed, whilst its outer part, which is oldest, becomes destroyed. The external cells becoming disaggregated, could alone have given the idea of a little sponge. With regard to the power of absorption, which, at least in certain plants, is much stronger at the extremity of the root than in other parts of that organ, it evidently cannot be assimilated to the capillary phænomena which cause liquids to rise in a sponge. The word *spongiolæ*, therefore, gives a false idea of that which really takes place in roots.

Some botanists who admit the spongiolæ, have nevertheless recognized the existence, on the surface of many roots, of prominent cells to which they attribute a share in absorption. I hold their opinion in this respect; and I am, moreover, led to believe that, even in the woody roots of trees, the whole of the surface is endowed with the property of absorbing liquids from the soil. In trees with a vigorous vegetation, such as *Paulownia*, I have sometimes had the opportunity of observing, I think in the spring, that the dead part of the bark was impregnated with a considerable quantity of liquids, which would probably be yielded to the living parts of the root.

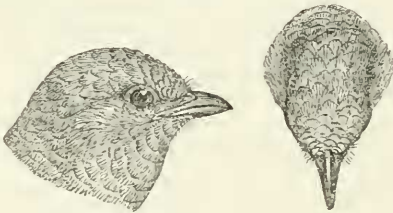
The liquids absorbed by the roots, by the agency of that force which we only know by its effects—namely life, are conveyed into the ligneous mass of these organs, and thence into that of the stem. These juices rise into the leaves, and then they descend towards the roots, describing a sort of circle. As they pass through the whole extent of the plant, I think that it would be advisable to call this the *great circulation*, and to give the name of *venous circulation* to that which, by the laticiferous vessels, conducts the substances which the cells have not assimilated to the true vessels. There is also an intracellular movement which has been observed in many vegetables.

This movement has received the name of *rotation*, because the juices appear to turn upon themselves, with more or less regularity, in the interior of each cell.—*Comptes Rendus*, Sept. 28, 1857, p. 434.

On a new Genus of Birds from Mexico. By P. L. SCLATER, Esq.

CAMPTOSTOMA.

Genus novum Tyrannidarum, Tyrannulo affine: rostrum altum, breve, valde compressum, apicè acuta et dente finali nulla; culmine multum arcuato et regulariter incurvo, gonyde paulum ascendente; vibrissis rictalibus nullis: alæ modicæ, dimidium caudæ attingentes; primariis secunda, tertia et quarta inter se æqualibus et quintam paulo excedentibus, sexta his paulo brevior sed primam superante: cauda modica quadrata: tursi breviusculi: pedes ut in genere Tyrannulo.



C. IMBERBE, sp. nov.

C. supra olivascenti-fuscum, pileo semicristato, cinerascenti-fusco; alis fuscis, secundariarum et tectricum marginibus externis pallidioribus et albicantibus; cauda pallide cinerascenti-fusco unicolore: subtus cinerascenti-albidum flavo perfusum: rostri nigri mandibula inferiore basi flavicante; pedibus nigris.

Long. tota 3·5; alæ 2·8; caudæ 1·3.

Hab. In vicinitate urbis S. Andres Tuxtla in rep. Mexicana.

M. Sallé's recent collections contain a single specimen of this curious little bird, which was obtained in the neighbourhood of S. Andres Tuxtla. There is no doubt about its belonging to the *Tyrannidæ*, but the form of the bill appears to be quite different from that of any bird hitherto recognized as of that family, and to require a new generic appellation. I have therefore called it *Camptostoma* from the arched form of the culmen. The specific name *imberbe* refers to the entire absence of rictal bristles. I consider *Tyrannulus* to be perhaps its nearest-allied generic form, from which, however, it may be at once distinguished by the peculiar depth and compression of the bill. Dr. Hartlaub's *Ornithion inerme* belongs, I suspect, to this same section of *Tyrannidæ*.—*Proc. Zool. Soc.* July 14, 1857.